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ABSTRACT

Technology is not often a factor in classroom activities because teachers are untrained in its use. In 1990, International Business Machines (IBM) contributed over 30 million dollars' worth of workstations, networking hardware and software, IBM courseware, cash, and training to prompt 144 selected teacher preparation programs to integrate technology into their curricula. This paper describes a study evaluating the impact of these contributions, based on data and comments received from the sites in the fall of 1992 (response rate 92%). The study discovered that 63% of teacher preparation faculty were trained in the use of IBM equipment, 44% of them because of the grant program, and that the numbers of pre-service and in-service teachers so trained increased in three successive academic years. (Contains 6 figures and 15 references.) (Author/BEW)

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Paper (M2-201B)

Research on the IBM Grant Program's Impact on Teacher Preparation

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Abstract

Despite technology's potential for transforming education, it has yet to influence many classrooms, often because teachers are untrained in its use. In 1990, IBM contributed over $30 million dollars in hardware, software, cash, and training to prompt 144 teacher preparation programs to integrate technology into their curricula. This study was conducted, in part, to determine what impact this contribution has had on teacher preparation. As reported below, a large proportion of teacher preparation faculty members has been trained on IBM technology, and the numbers of pre-service and in-service teachers so trained increased noticeably each academic year, over three reporting periods.

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IBM Grant Program

The great potential of educational technology (Bitter, 1970, 1981, 1987, 1991), and the many failures in educational technology innovation, (Drazdowski, 1990; House, 1974; Gayeski, 1989; Tornatzky & Fleischer, 1990) require research-based knowledge on the effective integration of technology into education, and especially into teacher preparation. As a contribution to increased and enhanced integration of technology into teacher preparation, and especially into teacher preparation, International Business Machines (IBM) conducted a nationwide grant program. Selected teacher preparation programs, across the country, received grants that typically included 15 IBM model 25 workstations, a fileserver, networking hardware and software, IBM courseware, a cash grant of $5,000.00, free training for two people from the project, and technical support.

To facilitate organization and communication within the grant program, IBM created nine regions, each headed by a regional coordinator, which was also a teacher preparation project site. The major investment of time and other resources by IBM and by the projects required an assessment of what impact this grant program has had on teacher preparation. Technology Based Learning and Research (TBLR) at Arizona State University was funded in November, 1992 to conduct a national study that would meet this need.

Evaluation Objective and Method

The goal of the evaluation was to provide a coherent understanding of what has been learned from this program and what its contributions were to knowledge about the integration of technology into teacher preparation. The objective on which this paper focuses was to determine the grant program's impact on teacher preparation.

Based on the materials received from the sites in the fall of 1992, and preliminary discussions with regional cooect directors, a questionnaire was designed to collect updated contact information from each site. After piloting the instrument through telephone interviews, copies were sent by facsimile to the sites. Repeated attempts by telephone and facsimile to reach non-respondents resulted in a response rate of 92%.

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A variety of means could be used to determine the impact of the IBM grant program, but the most important measures must include the populations who were served by the IBM laboratories. These included Teacher Preparation Program (TPP) faculty members, pre-service and in-service teachers.

Populations Served

TPP Faculty

Of all the populations served, arguably the most important for the long-term impact of technology on instruction, is the TPP faculty. New assistant professors might typically serve for 35 years. Based on an average of four classes per semester, with 30 pre-service teachers per class, new full-time TPP faculty members might affect 240 pre-service teachers per year, or over 8,000 in a career.

As pre-service teachers usually teach much the same way they were taught, the influence of TPP faculty members can be an enormous influence on future instruction in the schools. Table 1 reports the number of full-time and part-time TPP faculty members reported by responding sites. (The number of sites who responded to these questions are indicated in parentheses.)

Full-time (N=90)	Part-time (N=66)	Total
3633	1617	5250

Table 1. Number of Faculty Reported by Teacher Preparation Programs

Of these faculty members, the majority (63%) have been trained on IBM equipment, as illustrated in Figure 1. As shown, the overwhelming majority of those trained on IBM equipment were trained as an outcome of the project.

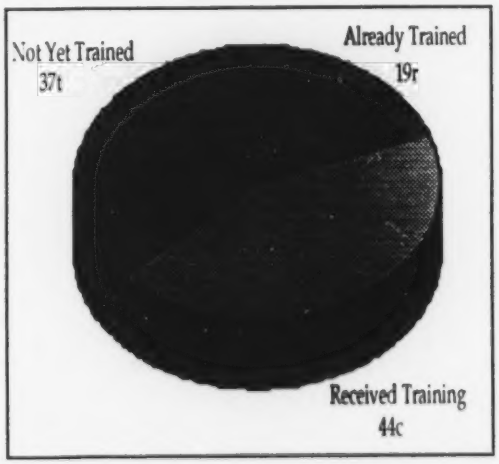

Figure 1. Percentage of Faculty Who Received Training on IBM

Thirty four percent of the sites (49 sites) reported on changes in faculty attitude toward the project's IBM laboratory during the course of the project. As illustrated in Figure 2, the great majority of these changes were positive. Table 2 reports responses associated with both positive, and negative, changes in attitude.

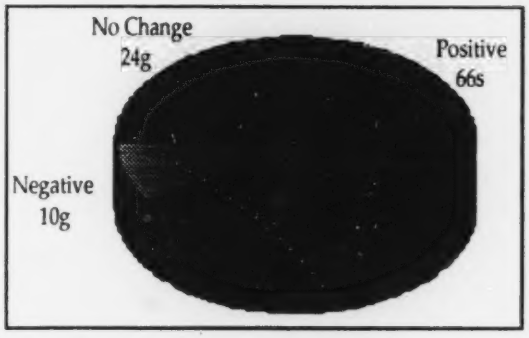

Figure 2. Change in Faculty Attitude Toward Project's IBM Laboratory

Positive	Negative
"Faculty realized that the IBM lab could be pedagogically integrated into all Pre-K to 6 curricula."	[The grant provided] "Outdated equipment."
"Lab has acted as a prompt to encourage and support the continued study and consideration of technology in all of the math classes within the math department."	[We had] "More Apple familiarity."
"More willingness to try technology; in-service programs help a lot."	"Software marginal, could use software that encourages higher-order thinking skills."
"The easy access to the network encouraged the faculty to try to integrate IBM technology into their classes, and helped them see the value of a computer network in the learning and teaching process."	[We needed] "More internal support."

Table 2. Responses Describing Attitude Change

Pre-service teachers

A large number of pre-service and in-service teachers have been trained on the IBM equipment provided by the grant program. Figure 3 illustrates the growth trend during each of the three most recent academic years. For academic year 1990-91, 65 sites reported having utilized the IBM labs for pre-service teacher training. For 1991-92, this number increased to 82 sites and for 1992-93, the number had increased to 89 sites. Over 52,063 pre-service teachers have received training on IBM technology since 1990, through the projects.

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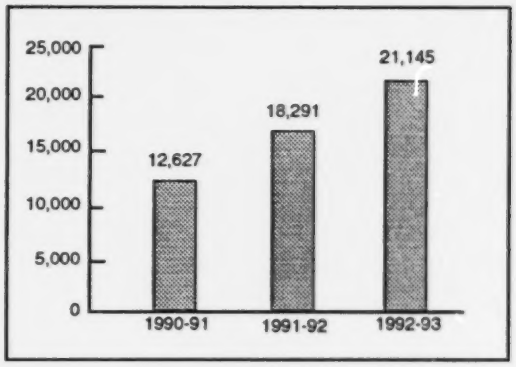

Figure 3. Pre-service teachers Trained in IBM Laboratories (1990-1993)

In-service teachers

Given the predominance of Apple computers in much of elementary and secondary education, it is not surprising that fewer in-service teachers than pre-service have been trained in the IBM labs. As illustrated in Figure 4, however, the number of in-service teachers trained on IBM computers is still substantial. For academic year 1990-91, 56 sites reported having utilized the IBM labs for in-service teacher training. For 1991-92, this number increased to 76 sites and for 1992-93, the number had increased to 78 sites. Over 18,507 in-service teachers have received training on IBM technology through the project since 1990.

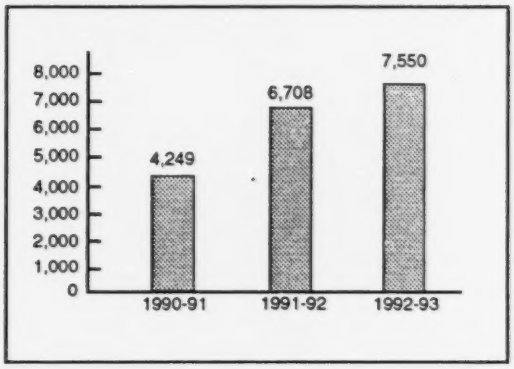

Figure 4. In-service teachers Trained in IBM Laboratories (1990-1993)

A variety of other populations were served by the projects. These included the site's students who were in fields of study other than TPP, the site's faculty in other fields, community groups, and local schools.

Other measures of the grant program's impact include the curricular changes made to integrate the laboratories and the use of those laboratories to leverage both internal and external support. These, and other data too numerous to include here, will be reported in Bitter and Pryor (forthcoming).

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